



# State Of Montana

## Office of Public

## Instruction

## IT Plan

**FOR FY2010 - FY2015 IT PLAN UPDATE**

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**INFORMATION TECHNOLOGY SERVICES DIVISION**

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## EXECUTIVE SUMMARY

With the successful completion of the Achievement in Montana (AIM ) project that was the focus of previous year's IT plans, the OPI now turns its attention to the effective control and use of the data collected by AIM and other OPI systems.

Both Goal 1 and Goal 6 are focused on governing and analyzing student data in order to help improve education within Montana.

The Data Warehouse effort (Goal 1) is a federally funded initiative to establish a statewide longitudinal data system for K-12 data. The warehouse will be populated primarily with data collected in AIM and will allow educators, regulators and other qualified stakeholders to easily obtain and analyze data associated with K-12 education.

The P-20 Data Systems effort (Goal 6) expands on Goal 1 and establishes connections between the OPI and other state agencies. By collecting data from DPHHS, DLI and OCHE into one data store a more complete picture will be gained on how well the K-12 education system prepares students for both higher education and the workforce. The P-20 initiative is dependent on obtaining a grant from the Institute of Education Sciences within the U.S. Department of Education.

Goal 2 describes the agency's efforts to modernize and create efficiencies within IT systems. Projects such as server virtualization and conversion of applications to .NET will result in lower ongoing costs to the agency as well as allowing easier maintenance of applications.

Goal 3 describes how the agency continues to modernize and enhance its information technology systems including a new web-based report card and a school staffing application.

The web report card application will replace the outdated application the OPI currently uses to make complying with the federal mandate of publishing school performance data easier as well as making the information easier to view by the general public.

The school staffing application will integrate teacher information from several sources, including salary and benefits; educator qualifications, credentials, and experience; licensure status; and school and district personnel assignments. The data and analysis will be used to inform policymakers about highly qualified teachers, areas of critical teacher shortages, economic factors affecting the supply and demand for educators, and professional development needs.

With large efforts such as the data warehouse and the P-20 data systems projects starting up, it will become more important to establish a robust project management culture within the agency. Goal 5 describes the efforts the agency will take to enhance project management within the agency and to improve the contract management process.

Security has always been a primary concern of the agency and as the agency collects and stores more data on Montana students it rises even higher in the OPI's priorities. Goal 7 stresses the importance of security and the agency's intention to comply with the recently published statewide policy for information security programs. An initial and important step in complying with the new policy is the agency's recent purchase of an identity management system and the inclusion of that project in Goal 7.

## SECTION 1: AGENCY CONTACT INFORMATION

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## SECTION 2: AGENCY IT MISSION

### 2.1 Agency IT Mission Statement

**The mission of the OPI's IT Division is to provide quality information services and products in order to support the agency in providing vision, advocacy, support and leadership for schools and communities to ensure that all students meet today's challenges and tomorrow's opportunities.**

## SECTION 3: AGENCY SECURITY PROGRAM

### 3.1 Security Program

The Office of Public Instruction currently has the following policies in place:

- Network Acceptable Use Policy
- IT Security Policy
- Student Records Confidentiality Policy
- Web Policy
- Database Policy and Standards
- Records Management Policy
- Security Roles and Responsibilities

The Network Services Bureau Chief currently serves as the agency security officer. (For a full description of all roles and responsibilities, see the OPI Security Roles and Responsibilities document.) In order to meet the requirements of the statewide policy for Information Security Programs, the OPI will need an additional FTE for this function. There is currently no funding in the OPI for such an FTE.

All OPI staff are required to sign a statement of consent for acceptable use on an annual basis. New employees are trained on the policy on an annual basis. We have developed training for the OPI staff on the agency's Student Records Confidentiality Policy. We have also created three 15-minute video presentations on OPI Security policies and practices, AIM Security policies and practices, and Technology and Infrastructure for AIM.

Data confidentiality and removal of data from the network are addressed in the Network Acceptable Use Policy and the Student Records Confidentiality Policy. All OPI staff are required to sign a confidentiality agreement if they have a need to access student or teacher records.

All desktops have the ESET NOD32 Virus scan software program installed and users are not given Administrator rights on the desktop. Desktops are automatically patched through the use of a WSUS server once the patch has been tested.

In addition to the above policies, the OPI has developed a disaster recovery policy and is working on a continuity of operations plan (COOP) in coordination with the Department of Administration.

The OPI needs to continue work in the COOP and disaster recovery areas in order to have a complete plan. This will require training and coordinated efforts with the Department of Administration/ITSD staff.

The OPI servers are physically secured in a climate controlled room that is locked 24 hours per day and access is only allowed by keycard. Only OPI network staff and their management have access to these facilities.

Web servers are scanned for vulnerabilities once a month and patches are applied to all servers as needed.

## SECTION 4: AGENCY IT PLAN – GOALS & OBJECTIVES

- Goals and objectives represent brief descriptions of what your agency plans to accomplish.
- This is not where you list your IT initiatives. You will do that in section 5.
- IT Initiatives represent special projects that you propose to support one or more of your goals or objectives.

### 4.1 Goals

#### *Goal Number 1:*

##### **ITG 1      Longitudinal Systems Data Warehouse**

**Description:** In this project, OPI will: (1) create an enterprise-wide data architecture to map the future for Montana's educational data systems, (2) create a data governance structure, (3) establish a data warehouse and migrate data from numerous legacy data systems to the data warehouse, and (4) implement business intelligence tools to make the data accessible for many different users.

The establishment of a data warehouse and the accomplishment of the related objectives will lay the foundation for a longitudinal data system with long-lasting benefits for public education in Montana. The creation of an enterprise-wide architecture will provide a blueprint for the data warehouse and for the consolidation, coordination and expanded use of the entire K12 educational data system. It will also chart the way to facilitate interoperability with pre-Kindergarten and post-secondary data systems.

Data will be migrated to the data warehouse from all major databases currently in use at the OPI. The consolidation of this data will allow the information to be combined and queried in ways that are now extremely labor intensive and therefore infrequently used.

Timely and accurate data and the powerful analyses made possible by the business intelligence tools will be invaluable for the State Superintendent and the OPI, the Governor and the legislature, the Montana Board of Public Education (K12), boards of trustees, administrators and teachers. It will assist in policy and resource allocation decisions.

In this project, OPI will: (1) create an enterprise-wide data architecture to map the future for Montana's educational data system, (2) create a data governance structure, (3) establish a data warehouse and migrate data from numerous legacy data systems to the data warehouse, and (4) implement business intelligence tools to make the data accessible for many different users.

**Benefits: What benefits are realized and who realizes the benefits?** The data warehouse is the backbone of a longitudinal data system. Such a system makes it possible to use growth models both for school accountability and for improving instruction of individual students. It will facilitate federal and state reporting, and it will allow more individualized tracking, instruction and intervention with students by teachers and administrators. In the future, this foundation will make possible parental tracking of student progress and greater public transparency of what is happening in schools. The foundation of all these beneficial outcomes for the Montana educational system is a data warehouse that makes possible a longitudinal data system.

**Does this goal support the State IT Strategic Plan? If so, how?** This goal supports the state goal to develop IT resources in an organized, deliberative, and cost-effective manner and the goal to improve



government services.

### Supporting Objective/Action

**ITO 1-1** Create an enterprise-wide data architecture to map the future for Montana's educational data systems.

**Describe the business requirements or business problem driving this objective:** The OPI has state and federal reporting mandates that require a consistent, agency-wide view of educational data.

**Describe the benefits to be derived from the successful completion of this objective:** Once enterprise architecture is implemented, the OPI will have a framework that will allow the agency to add additional data elements in an organized fashion that will allow the quick and accurate creation of state and federal mandated reports.

**Describe the anticipated risks associated with this objective:** The current data structure of the agency is large and somewhat fractured. The project will require the cooperation of all divisions of the agency and the willingness to agree and abide by the business rules that are developed.

**Describe how this objective supports the agency IT goal:** It will allow the timely and accurate creation of state and federal mandated reports.

**What is the timeframe for completion of this objective:** Complete

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** An enterprise architecture and associated process and policy is published.

**ITO 1-2** Create a data governance structure – The OPI will establish an internal body that will oversee changes, quality control and interpretation of the data held in the agency data stores.

**Describe the business requirements or business problem driving this objective:** Accurate data whose interpretation is agreed upon amongst all divisions is required to meet state and federal reporting mandates.

**Describe the benefits to be derived from the successful completion of this objective:** The agency data will be more accurate and under organized control.

**Describe the anticipated risks associated with this objective:** All divisions of the agency will be required to participate and there will be significant competing priorities.

**Describe how this objective supports the agency IT goal:** It will allow the timely and accurate creation of state and federal mandated reports.

**What is the timeframe for completion of this objective:** Complete

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** A committee is created and meets on a regular basis.

**ITO 1-3** Establish a data warehouse and migrate data from legacy data systems – In order to expose the data for use by the agency and other interested parties, a data warehouse will be created utilizing the rules established in the enterprise architecture and under the oversight of the data governance committee.

**Describe the business requirements or business problem driving this objective:** The OPI will use the data warehouse to meet state and federal student data reporting mandates as well as the agencies obligation to report information to the general public on the performance of public schools within Montana.

**Describe the benefits to be derived from the successful completion of this objective:** The data warehouse will provide a single location containing consistently interpreted data for all required reporting, resulting in highly accurate reports that can be created in a timely fashion.

**Describe the anticipated risks associated with this objective:** The agency has a wealth of data to be

migrated from a variety of sources.

**Describe how this objective supports the agency IT goal:** The data warehouse will facilitate the ability to meet state and federal reporting mandates.

**What is the timeframe for completion of this objective:** Q2 2012

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** The data warehouse is created and used for reporting purposes.

**ITO 1-4** Implement business intelligence tools – In order to effectively use the data stored in the warehouse and to assist in the analysis and presentation of the data a robust business intelligence tool will be implemented.

**Describe the business requirements or business problem driving this objective:** The OPI will use the business intelligence tools in conjunction with the data warehouse to meet state and federal student data reporting mandates as well as the agencies obligation to report information to the general public on the performance of public schools within Montana

**Describe the benefits to be derived from the successful completion of this objective:** Easy access to a consolidated view of the data OPI houses.

**Describe the anticipated risks associated with this objective:** There are different constituencies for the tool with competing requirements.

**Describe how this objective supports the agency IT goal:** The business intelligence tool will facilitate the ability to meet state and federal reporting mandates and the agencies obligation to present data to the general public.

**What is the timeframe for completion of this objective:** Q4 2012

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** A tool is in place and used as part of the agency's day to day operation.

## *Goal Number 2:*

### **ITG 2            Improve Network Efficiencies and Capabilities**

**Description:** Improve network efficiencies and capabilities by implementing new technologies when older technologies no longer serve their function and the mission of the office.

**Benefits: What benefits are realized and who realizes the benefits?** Reduced cost, improved employee and program efficiencies, as well as customer satisfaction with related information and availability of services.

**Does this goal support the State IT Strategic Plan? If so, how?** This goal supports the state goal of developing IT resources in an organized, deliberative, and cost-effective manner and the state goal to improve government services.

### **Supporting Objectives/Actions**

#### **ITO 2-1            Utilize virtual servers and consolidate servers where applicable**

**Describe the business requirements or business problem driving this objective:** Our goal is to reduce the number of servers needed while maintaining the level of service necessary to satisfactorily perform OPI business. Our main issue is the limited amount of space and cooling available in our datacenter.

**Describe the benefits to be derived from the successful completion of this objective:** Utilizing virtual servers and consolidating servers will save money by reducing operational/energy costs (cooling and power) associated with our data center facilities.

**Describe the anticipated risks associated with this objective:** Server hardware failure will take down multiple servers. Installing applications which do not peacefully co-exist on a server causing server failures and a reduction in server response due to overload.

**Describe how this objective supports the agency IT goal:** This objective supports the IT goal to provide quality information services and products to the OPI and K-12 public schools.

**What is the timeframe for completion of this objective:** Q3 2011

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** When the number of servers has been significantly reduced and the environment is still able to support the OPI mission.

#### **ITO 2-2            Convert existing MS Access applications to .NET - Migrate existing MS Access applications to .NET web/Windows applications as time, resources, and/or needs dictate.**

**Describe the business requirements or business problem driving this objective:** Ease of use for the business.

**Describe the benefits to be derived from the successful completion of this objective:** Users will benefit due to having easier to use applications that are more robust and modern. IT staff will benefit from reduced maintenance and support costs.

**Describe the anticipated risks associated with this objective:** The risks are minor and related to the possibility of the introduction of defects when the interface is rewritten. Regression tests will be performed to mitigate the risk.

**Describe how this objective supports the agency IT goal:** The resulting applications will run more efficiently in .NET than Access.

**What is the timeframe for completion of this objective:** Q4 2011

**Describe the critical success factors associated with this objective; i.e., how will you know when it has**

**been successfully completed?:** The objective will be complete once all Access applications are rewritten and accepted by the business for production use.

**ITO 2-3** Upgrade database servers to SQL 2008 - Install SQL Server 2008 on OPI's production, database servers.

**Describe the business requirements or business problem driving this objective:** OPI needs to stay on the latest releases of our core software to insure that support is received from Microsoft.

**Describe the benefits to be derived from the successful completion of this objective:** Stay on latest release of software to obtain Microsoft support and receive latest security patches and software enhancements

**Describe the anticipated risks associated with this objective:** There is a possibility that the SQL Server 2008 may handle certain functions differently than SQL Server 2005. OPI will complete significant regression testing to mitigate this risk.

**Describe how this objective supports the agency IT goal:** Newer versions of SQL Server typically run more efficiently.

**What is the timeframe for completion of this objective:** - Completed

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** SQL Server 2008 will be installed and functioning in the production environment with minimal reported issues from the business community.

**ITO 2-4** Increase use of video streaming

**Describe the business requirements or business problem driving this objective:** The rising cost of fuel and travel necessitate a more cost effective method of Video on Demand (VOD), training and examples to school district personnel. VOD can be delivered over the internet, 24-7-365, freeing staff for day-to-day operations.

**Describe the benefits to be derived from the successful completion of this objective:** Streaming technologies are becoming increasingly important with the growth of the Internet. With streaming, the client browser or plug-in can start displaying the data before the entire file has been transmitted. Like a television, the streamed data is consumed saving the end-user disk space. Users with internet connectivity from 56 kbps on up can view streams at anytime, anywhere.

New technology standards such as H.264 use the latest innovations in video compression technology to provide incredible video quality from the smallest amount of video data. This means clear video in much smaller files, saving bandwidth and storage costs over previous generations of video codecs. H.264 delivers the same quality as MPEG-2 at a third to half the data rate and up to four times the frame size of MPEG-4 Part 2 at the same data rate.

**Describe the anticipated risks associated with this objective:** Possible increased use of internet bandwidth.

**Describe how this objective supports the agency IT goal:** Provide quality information services to the OPI and Montana's K-12 public schools.

**What is the timeframe for completion of this objective:** Initial implementation COMPLETED in June 2009, migration to the tool is ongoing.

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** Increased use of this technology and reduction in travel expenses.

*Goal Number 3:***ITG 3      New application development**

**Description:** There are several new upcoming projects that will need to have applications developed. These efforts may require purchasing an off the shelf product, some may be developed in-house, and others may require the services of a contractor. Each application will be evaluated to determine the best use of existing tools, staff, and budget.

**Benefits: What benefits are realized and who realizes the benefits?** The OPI is required to comply with many state and federal mandates for reporting data. The applications listed below will streamline the process and make decisions and actions based on these decisions more timely and accurate.

**Does this goal support the State IT Strategic Plan? If so, how?** This goal supports the state goal to develop IT resources in an organized, deliberate, and cost-effective manner.

**Supporting Objectives/Actions**

**ITO 3-1**      Develop a school staffing application - The school staffing application will integrate teacher information from several sources, including salary and benefits; educator qualifications, credentials, and experience; licensure status; and school and district personnel assignments.

**Describe the business requirements or business problem driving this objective:** Inform state policymakers who are responsible for setting licensure standards and developing education initiatives; and meet state and federal reporting requirements.

**Describe the benefits to be derived from the successful completion of this objective:** The data and analysis will be used to inform policymakers about highly qualified teachers, areas of critical teacher shortages, economic factors affecting the supply and demand for educators, and professional development needs.

**Describe the anticipated risks associated with this objective:** This project involves numerous stakeholders, many of whom are charged with implementing core state processes related to preparation of teachers, accreditation of schools, and administration of employee benefits. It will be critical to the project's success that interested parties be involved throughout the planning and design process.

**Describe how this objective supports the agency IT goal:** This supports the OPI IT goal to provide quality information services and products to the OPI to support and improve public education in Montana.

**What is the timeframe for completion of this objective:** Q4 2012

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** The project will link data related to educator preparation programs, licensure of educators, assignment of school personnel, accreditation of schools, and reporting of payroll information. This system will be used by the Schools of Education in Montana, the Office of Public Instruction, the Teachers Retirement System, and other education stakeholders.

**ITO 3-2** Replace the current web report card application with a new tool

**Describe the business requirements or business problem driving this objective:** Update or replace the existing NCLB Report Card. The current software used to display the report card is out of date which results in issues for public viewing.

**Describe the benefits to be derived from the successful completion of this objective:** The NCLB report card will be more easily maintained and easier to access by the general public.

**Describe the anticipated risks associated with this objective:** The Report Card is a complicated report that pulls data from different sources. Significant testing will be completed to mitigate this risk.

**Describe how this objective supports the agency IT goal:** Will make complying with the Federal mandate of publishing NCLB data easier as well as making the data easier to view by the general public.

**What is the timeframe for completion of this objective:** Q3 2011

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** The project will be considered complete once the new report card is posted to the web using updated technology.

**ITO 3-3** Direct certification data matching - Match students in AIM with children of parents who apply for food stamps to determine eligibility for free/reduced lunch.

**Describe the business requirements or business problem driving this objective:** Increase/maximize the usage of the Free and Reduced lunch program in order to provide the best level of service to Montana students

**Describe the benefits to be derived from the successful completion of this objective:** The individual schools will have a better list of students that may be eligible for the Free and Reduced lunch program.

**Describe the anticipated risks associated with this objective:** There is limited shared data between the systems which may result in inflated results. This risk will be mitigated via documented business processes. DPHHS is rewriting their existing systems and may not be able to work with us to improve the data exchange until the new system is in place.

**Describe how this objective supports the agency IT goal:** This supports the goal of supplying information for individuals to quick and accurate decisions based on the best data available.

**What is the timeframe for completion of this objective:** On hold pending the introduction of new systems at DPHHS

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** The project will be considered a success when we provide a list to each school that contains students that may be eligible for the Free and Reduced lunch program.

**Goal Number 4:****ITG 4      Records Management**

**Description:** Work with the Department of Administration, eRIM committee and the Secretary of State Office to implement an enterprise solution for electronic records management.

**Benefits: What benefits are realized and who realizes the benefits?** Records are easier to locate when needed, will save time and effort locating the records. Standards could be defined as to retention, metadata, archiving, classification, etc.

**Does this goal support the State IT Strategic Plan? If so, how?** Supports the goal to improve government services and develop IT resources in an organized, deliberative and cost-effective manner.

**Supporting Objectives/Actions**

**ITO 4-1      Develop an electronic records management application and policy**

**Describe the business requirements or business problem driving this objective:** All state agencies are required to maintain public records. It is important for the agency to have consistent accessibility to its records and to protect an individual's right to privacy and confidentiality. To accomplish this objective, the OPI will maintain its records in a secure environment and limit access rights to authorized staff. A semi-annual report of authorized staff with read and write access to sensitive files will be filed with the Records Management Committee.

The OPI will have protocols to develop or refresh access rights as staff changes and rights are transferred.

**Describe the benefits to be derived from the successful completion of this objective:** Ensure official records are accessed by appropriate parties and kept in a secure environment.

**Describe the anticipated risks associated with this objective:** By not implementing this goal, the potential to lose important records is increased. There is also a risk of the compromising of accuracy, privacy, and authenticity of records.

**Describe how this objective supports the agency IT goal:** This is a step towards assuring official and secure records for the agency and protecting the public's privacy and confidentiality.

**What is the timeframe for completion of this objective:** Q3 2011 – Policy under Review

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** When the new policy is approved by the Superintendent of Public Instruction and all staff are trained and aware of the amended RM policy.

*Goal Number 5:*

**ITG 5      Project Management Office**

**Description:** Further develop the Project Management Office (PMO) that will provide the structure needed to standardize project management practices, determine methodologies for repeatable processes, mentor other project managers as well as facilitate IT project portfolio management. Ensure IT projects are being driven by business needs and effective contract management.

**Benefits: What benefits are realized and who realizes the benefits?**

- Project Management: Manage Information Technology projects that meet a critical business need and have a significant budget and/or visibility.
- Project support: Provide project management guidance to project managers in the operations and business units.
- Project management process/methodology: Develop and implement a consistent and standardized process.
- Training: Conduct training programs or collect requirements for an outside company.
- Home for project managers: Maintain a centralized office from which project managers are loaned out to work on projects.
- Internal consulting and mentoring: Advise employees about best practices.
- Project management software tools: Select and maintain project management tools for use by employees.

Portfolio management: As future needs necessitate it, establish a staff of program managers who can manage multiple projects that are related, such as infrastructure technologies, desktop applications and so on, and allocate resources accordingly.

**Does this goal support the State IT Strategic Plan? If so, how?** This goal supports the state goal to development IT resources in an organized, deliberative, and cost-effective manner.

**Supporting Objectives/Actions**

**ITO 5-1**      Implement Best Practices - The OPI will use project management methodologies, including independent verification and validation, continuous strategic planning and system development life cycle, including testing and quality assurance.

**Describe the business requirements or business problem driving this objective:** Ensure projects are successful.

**Describe the benefits to be derived from the successful completion of this objective:** Systems will be managed using the best technology methodologies in an organized and cost-effective manner.

**Describe the anticipated risks associated with this objective:** Standardize and introduce economies of repetition in the execution of projects.

**Describe how this objective supports the agency IT goal:** Provide the structure needed to standardize project management practices, determine methodologies for repeatable processes.

**What is the timeframe for completion of this objective:** ongoing

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** Projects are successfully completed.



**ITO 5-2** Business Process Management - The OPI will insure IT projects are being driven by business needs by utilize Business Process Reengineering (BPR) and Continuous Improvement Process (CIP).

**Describe the business requirements or business problem driving this objective:** To optimize business processes as they are being developed into information systems.

**Describe the benefits to be derived from the successful completion of this objective:** The OPI will be able to make realistic evaluations of costs and benefits, avoid critical risks, and monitor and manage contractor compliance/performance.

**Describe the anticipated risks associated with this objective:** Business process change after BPR, CIP, or requirements acceptance.

**Describe how this objective supports the agency IT goal:** Provide the structure needed to standardize project management practices.

**What is the timeframe for completion of this objective:** ongoing

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** Projects are successfully completed in a manner that recognizes existing and evolving cross-office business needs.

**ITO 5-3** Effective Contract Management - Effective contract management will ensure the OPI and vendors under contract fully meet our respective obligations as efficiently and effectively as possible.

**Describe the business requirements or business problem driving this objective:** Ensure projects are completed successfully and as effectively as possible.

**Describe the benefits to be derived from the successful completion of this objective:** Make realistic evaluations of costs and benefits, avoid critical risks, and monitor and manage contractor compliance/performance.

**Describe the anticipated risks associated with this objective:** Inadequate scope and deliverable management increasing time and cost to project.

**Describe how this objective supports the agency IT goal:** Ensure IT projects are being driven by business needs and effective contract management.

**What is the timeframe for completion of this objective:** ongoing

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** Projects are successfully completed as efficiently and effectively as possible.

*Goal Number 6:***ITG 6      P-20 Data Systems**

**Description:** The focus of this goal is to address data linkages among early childhood programs, K-12 education, postsecondary institutions and the workforce development services. Specifically, this goal is intended to address Montana's remaining five required data system elements for the Data Quality Campaign:

- the capacity to communicate with higher education data systems;
- student-level transcript information, including information on courses completed and grades earned;
- student-level college readiness test scores;
- information regarding the extent to which students transition successfully from secondary school to postsecondary education, including whether students enroll in remedial coursework; and
- other information determined necessary to address alignment and adequate preparation for success in postsecondary education.

**Benefits: What benefits are realized and who realizes the benefits?** The P-20 data system will build on the data warehouse (see Goal 1). This goal will establish stronger links between the K-12 education data housed within the OPI and other state agency's data to allow for better analysis of student outcomes over the course of their education life. Such a system makes it possible to use growth models both for school accountability and for improving instruction of individual students. It will facilitate federal and state reporting, and it will allow more individualized tracking, instruction and intervention with students by teachers and administrators.

**Does this goal support the State IT Strategic Plan? If so, how?** This goal supports the state goal to develop IT resources in an organized, deliberative, and cost-effective manner and the goal to improve government services.

**Supporting Objectives/Actions**

**ITO 6-1**      Add the statewide student ID to all high school transcripts.

**Describe the business requirements or business problem driving this objective:** Higher Education Institutions in Montana need the student ID in order to effectively link an individual's K-12 education information to their higher education information.

**Describe the benefits to be derived from the successful completion of this objective:** Using a common student ID for P-20 will allow better analysis of how a student's K-12 education impacts their higher education experience.

**Describe the anticipated risks associated with this objective:** Transcripts are prepared at the district level, so a coordination effort will be required amongst all districts within Montana.

**Describe how this objective supports the agency IT goal:** Information gathered by linking K-12 data to higher education data will allow the OPI to analyze how well the K-12 systems are preparing students for post secondary work.

**What is the timeframe for completion of this objective:** Q3 2012

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** All high school transcripts contain the statewide student ID.

**ITO 6-2** Establish data linkages among state agency partners to connect data from early childhood to K-12 to postsecondary, job training and apprenticeships and the workforce

**Describe the business requirements or business problem driving this objective:** Link K-12 data with DPHHS, DLI and OCHE to allow better tracking of students throughout their educational career improve K-12 education in order to prepare students for the job force and higher education.

**Describe the benefits to be derived from the successful completion of this objective:** Improved educational opportunities for students.

**Describe the anticipated risks associated with this objective:** Dependant on winning the P-20 grant submitted to the Institute of Education Sciences.

**Describe how this objective supports the agency IT goal:** This objective supports the IT goal to provide quality information services and products to the OPI and K-12 public schools

**What is the timeframe for completion of this objective:** Q3 2012

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** The objective will be complete when the OPI, DPHHS, DLI and OCHE exchange data on a regular basis.

**ITO 6-3** Create an electronic student transcript repository for K-12 education

**Describe the business requirements or business problem driving this objective:** The OPI needs to facilitate the collection and distribution of K-12 transcripts.

**Describe the benefits to be derived from the successful completion of this objective:** The information associated with the transcripts is an important component of the P-20 data warehouse and can be used to assist decision-makers in assessing state and local efforts to increase student performance and career readiness.

**Describe the anticipated risks associated with this objective:** Dependant on winning the P-20 grant submitted to the Institute of Education Sciences.

**Describe how this objective supports the agency IT goal:** This objective supports the IT goal to provide quality information services and products to the OPI and K-12 public schools.

**What is the timeframe for completion of this objective:** Q2 2013

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** K-12 transcripts are available for transmission to qualified requestors.

**ITO 6-4** Create an Interagency P-20 Data Governance Workgroup

**Describe the business requirements or business problem driving this objective:** Expand the data governance model established in the data warehouse initiative (see Goal #1) to include all stakeholders with P-20 data.

**Describe the benefits to be derived from the successful completion of this objective:** As data is exchanged between agencies, there will be a need to have a forum to discuss and control the data that is being shared.

**Describe the anticipated risks associated with this objective:** Dependant on winning the P-20 grant submitted to the Institute of Education Sciences.

**Describe how this objective supports the agency IT goal:** This objective supports the IT goal to provide quality information services and products to the OPI and K-12 public schools

**What is the timeframe for completion of this objective:** Q2 2013

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** Success will be measured by having regular meetings for all P-20 stakeholders.

**ITO 6-5** Implement business intelligence and web reporting tools for users of P-20 data

**Describe the business requirements or business problem driving this objective:** Expand the business intelligence tool established by the data warehouse project (see Goal 1) to include P-20 data.

**Describe the benefits to be derived from the successful completion of this objective:** Allow the analysis of P-20 data to improve education within Montana.

**Describe the anticipated risks associated with this objective:** Dependant on winning the P-20 grant submitted to the Institute of Education Sciences.

**Describe how this objective supports the agency IT goal:** This objective supports the IT goal to provide quality information services and products to the OPI and K-12 public schools

**What is the timeframe for completion of this objective:** Q3 2012

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** The business intelligence tool encompasses P-20 data.

**ITO 6-6** Develop a system of P-20 performance measurement and reporting

**Describe the business requirements or business problem driving this objective:** Agreed on measures and reporting need to be developed in order to effectively use the data collected as part of the P-20 initiative.

**Describe the benefits to be derived from the successful completion of this objective:** Allow the analysis of P-20 data to improve education within Montana.

**Describe the anticipated risks associated with this objective:** Dependant on winning the P-20 grant submitted to the Institute of Education Sciences.

**Describe how this objective supports the agency IT goal:** This objective supports the IT goal to provide quality information services and products to the OPI and K-12 public schools.

**What is the timeframe for completion of this objective:** Q3 2012

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** Reports and measures for P-20 data are agreed upon and produced on a regular basis.

*Goal Number 7:***ITG 7      Improve the security environment for the agency**

**Description:** The OPI has many security policies and procedures in place and reviews them on a regular basis. With the recent adoption of the Information Security Program policy, the agency will have to take a fresh look at its security practices and implement additional process and procedures in order to comply with the new statewide policy.

**Benefits: What benefits are realized and who realizes the benefits?** This goal will result in a more secure environment for the data housed within the agency.

**Does this goal support the State IT Strategic Plan? If so, how?** This goal supports the state goal to develop IT resources in an organized, deliberative, and cost-effective manner and the goal to improve government services.

**Supporting Objectives/Actions****ITO 7-1      Implement the appropriate NIST guidelines within the agency**

**Describe the business requirements or business problem driving this objective:** In order to comply with the new statewide security policy, NIST guidelines must be interpreted and implemented within the agency.

**Describe the benefits to be derived from the successful completion of this objective:** A more secure environment for agency data and greater insight into the security of agency systems.

**Describe the anticipated risks associated with this objective:** The NIST guidelines are lengthy and the resulting processes could be labor intensive. Without additional resources, it will be difficult meeting the stated timeframe.

**Describe how this objective supports the agency IT goal:** This objective will ensure that the data used for analysis and provided to regulators and other stakeholders is secure.

**What is the timeframe for completion of this objective:** Q3 2012

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** This objective will be considered complete when the agency successfully passes a security audit.

**ITO 7-2      Institute an enterprise identity management system to control the provisioning and authentication of accounts with access to OPI data**

**Describe the business requirements or business problem driving this objective:** As the OPI collects and stores additional data about the student population, the effective control of access to this data is crucial to maintaining the required confidentiality.

**Describe the benefits to be derived from the successful completion of this objective:** Insures only individuals with a legitimate need have access to data housed within the OPI.

**Describe the anticipated risks associated with this objective:** Without effective identity management it is possible individuals who change responsibilities could retain access to data they no longer need.

**Describe how this objective supports the agency IT goal:** This objective supports the IT goal to provide quality information services and products to the OPI and K-12 public schools.

**What is the timeframe for completion of this objective:** Q4 2011

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** A robust identity management system is used to control access to OPI's data.

**ITO 7-3** Update the disaster recovery plan and create a Continuity of Operations Plan - The OPI currently has a disaster recovery plan for an agency-specific failure, but does not have a complete Continuity of Operations Plan. The OPI will work with the Department of Administration to prepare and test such a plan.

**Describe the business requirements or business problem driving this objective:** The ability to recover OPI critical applications and continue to provide government services to the public, school districts, and the OPI staff.

**Describe the benefits to be derived from the successful completion of this objective:** Protects investment and allows for business continuity in the event of a disaster.

**Describe the anticipated risks associated with this objective:** The risk of not fulfilling this objective is that critical services will not be provided and student and financial data would not be recovered.

**Describe how this objective supports the agency IT goal:** This objective supports the IT goal to provide quality information services and products to the OPI and K-12 public schools.

**What is the timeframe for completion of this objective:** August 2011 for updating and testing agency disaster recovery plan. COOP - ongoing

**Describe the critical success factors associated with this objective; i.e., how will you know when it has been successfully completed?:** These plans will need to be continually tested and refined as the agency mission and/or goals change and as critical applications come on line or are no longer needed.

## SECTION 5: IT INITIATIVES (FY2010 – FY 2015)

### 5.1 IT Initiatives

***Initiative 1 - Title:*** State Longitudinal Data System (SLDS)

***Description:*** In this project, OPI will: (1) create an enterprise-wide data architecture to map the future for Montana's educational data system, (2) create a data governance structure, (3) establish a data warehouse and migrate data from numerous legacy data systems to the data warehouse, and (4) implement business intelligence tools to make the data accessible for many different users. This project is a four year effort beginning in 2010 and is funded via a federal grant for \$5,800,000.

***EPP Number (if applicable):*** N/A

***Initiative 2 - Title:*** School Staffing

***Description:*** The school staffing application will integrate teacher information from several sources, including salary and benefits; educator qualifications, credentials, and experience; licensure status; and school and district personnel assignments. The budget for this project is \$400,000.

***EPP Number (if applicable):*** N/A

## SECTION 6: ENTERPRISE ALIGNMENT

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### 6.1 State Strategic Plan for IT Alignment

Please indicate which Communities of Interest your agency plans to be involved in. Agencies are asked to select at least one, but can select as many as needed. Further planning work by the communities of interest will take place following submission of agency IT plans.

- ☐ Government Services
- ☐ Public Safety
- ☐ Human Resources
- ☐ Environmental
- ☒ Education
- ☐ Economic
- ☐ Cultural Affairs
- ☐ Finance



## SECTION 7: EXPENDITURES

### 7.1 Planned Agency IT Expenditures

<u>Expense Category</u>	<u>FY2010</u>	<u>FY2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>
Personal Services	1,857,000	2,065,000	2,065,000	2,065,000	2,065,000	2,065,000
Operating Expenses	2,014,642	2,075,081	2,137,334	2,201,454	2,267,497	2,335,522
Initiatives	340,000	726,090	4,062,367	1,113,786	0	0
Other expenditures	45,000	25,000	25,000	25,000	25,000	25,000
<b>Totals</b>	4,256,642	4,891,171	4,581,734	4,459,354	4,439,447	4,507,472

## SECTION 8: ENTERPRISE IT INVENTORY

### 8.1 Inventory Update

*Has the Agency updated their IT Inventory Database as outlined in Section 8 of the instructions? Yes*

*Date that Agency last updated their IT Inventory: March 18, 2010*

## SECTION 9: ADDITIONAL INFORMATION - OPTIONAL

Other types of information that support the agency's IT Plan. Some examples might include other COI participation, reference to other IT plans such as GIS plan, eGovernment plan, security plan, staffing issues and constraints, etc.